

Destination L1: A Thematic Unit

Where on Earth?

TEACHER GUIDE - GEOGRAPHY

BACKGROUND INFORMATION

This activity builds upon the work that students completed in the introductory activity “What a Trip!” In this activity, students review the concepts of latitude and longitude and use maps to determine latitude and longitude for several cities and the destinations they chose in “What a Trip!” In the middle school extension, students explore and describe the characteristics of the online geographical databases used to find the coordinates of their destinations. In the high school section of this activity, students will take a birds-eye view of their destination from the “What a Trip!” activity by observing and analyzing satellite images of their destination. They will ask questions about the images of their destination from this vantage point and describe characteristics and possible uses of images produced from this technology.



NATIONAL GEOGRAPHY STANDARDS ADDRESSED

(Source - *Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education—3rd Edition*)

Grades 3-5

[Understands the characteristics and uses of maps, globes and other geographic tools and technologies](#)

Uses map grids to plot absolute location

Grades 6-8

[Understands the characteristics and uses of maps, globes and other geographic tools and technologies](#)

Knows the characteristics and purposes of geographic databases (e.g., databases containing census data, land-use data, topographic information)

Grades 9-12

[Understands the characteristics and uses of maps, globes and other geographic tools and technologies](#)

Knows the characteristics and uses of geographic technologies (e.g., geographic information systems (GIS) and satellite-produced imagery)

(View a full text of the [Content Knowledge: 3rd Edition Standards.](#))

MATERIALS

For each student:

- Student Activity, [“Where on Earth”](#)
- Student Activity, [“View From Above”](#) (High School Extension)

PROCEDURE

1. Review the concepts of absolute location, longitude, and latitude. Remind students that longitude and latitude make up a system for locating points on the Earth’s surface. Longitude lines are the circles that run through the North and South Poles and represent the distance east or west of the Prime Meridian. Latitude represents the distance north or south of the equator.



2. Give each student a United States map. Ask them to label their hometown and circle the following cities:

Anchorage, AK	New York, NY
Chicago, IL	Orlando, FL
Denver, CO	Santa Fe, NM
Honolulu, HI	Seattle, WA
Houston, TX	Washington, DC
Los Angeles, CA	

Note: You can select alternate cities or locations for them to locate.

3. Ask them to also mark the city or place(s) they wanted to visit in the introductory activity, "What a Trip!"

4. Ask students to use the map to estimate the longitude and latitude for each city and their destination(s). Have them record their estimates.

Alternate Strategy Tip

If the students know the street address for their destination, they can find the exact coordinates by using [Tele Atlas](#).

5. Ask students to go to either the United States Geological Survey site or to the [Getty Thesaurus of Place Names](#) and conduct a search for the city. After they've submitted their search, a screen will come up with a list of places found. Students should scroll down this screen to find the city which may be listed as a "populated place" or an "inhabited place," depending on the site. Students may need help in finding the correct listing.

6. Ask students to compare the actual coordinates to their estimates. How close were their estimates?

7. Using the coordinates, have students put each place in order from any of the following ways: south to north, west to east, north to south, or east to west.

Teaching Tip

For the middle school extension, you may want the students to complete a [Venn Diagram](#) of the online databases.

8. Review the correct answers for whichever way you had them organize the places.

9. Ask students to give the latitude and longitude coordinates for their trip destinations aloud. Write these on the board. Have the rest of the class determine the approximate location based on the coordinates.

10. Discuss with students why it may be important to know the absolute location of a city or place. For example, longitude and latitude can be used to identify the location of any place on Earth. If you are unfamiliar with a location, but had its coordinates, you could find it on a map. You could also get some idea about its climate or other geographical features.

**Alternate Strategy Tip
Middle School Extension**

1. Ask students to compare the characteristics of each of the two databases that could have been used for this activity. What input information was the same; which were different? Next, have the students compare the type of output information provided once a search has been submitted.
2. Ask students to describe some of the purposes of these types of geographic databases.
3. Finally, ask students to describe ways the databases could be improved.

**Alternate Strategy Tip
High School Extension**

1. Have students work in teams of two. Each pair of students will need to have a computer with an Internet connection. Distribute the Student Activity "View from Above." Instruct them to use the Web resources provided. Have them locate several images of their destination from "What a Trip!"
2. Encourage students to describe their location as completely as possible using many different images. Ask them how they are able to tell the difference between natural and human-made land forms.
3. For the student-generated questions, encourage students to formulate questions that can be found by research.
4. For the procedure for finding some of the answers to their questions, look for students making connections between the scientific concepts and their investigation. Part of their procedure might be to acquire scientific knowledge from sources other than an actual investigation such as asking a scientist that studies these images. Students could look at the FAQ section of the Earth Sciences and Image Analysis at NASA-Johnson Space Center or e-mail them at earthweb@jsc.nasa.gov.
5. For the question about how to make the technology more useful, encourage students to think about the many people who may use this technology. What features would those people need? How could it be more useful for students, travelers, or scientists? Possible features might be the ability to rotate the picture, zoom in and out, or isolate a section of the picture. There is even software for making measurements in images. See the resource section for information about how to download [Image J](#) software for free.

Absolute Location of Selected Cities:

City	Latitude	Longitude
Anchorage, AK	61° 13' N	149 ° 54' W
Chicago, IL	41° 51' N	087° 39' W
Denver, CO	39° 44' N	104° 49' W
Honolulu, HI	21° 18' N	157° 51' W
Houston, TX	29° 45' N	095° 21' W
Los Angeles, CA	34° 03' N	118° 14' W
New York, NY	40° 42' N	074° 00' W
Orlando, FL	28° 32' N	081° 22' W
Santa Fe, NM	35° 41' N	105° 56' W
Seattle, WA	47° 36' N	122° 19' W
Washington, DC	38° 53' N	077° 02' W

TEACHER RESOURCES**URLs**

<http://earth.jsc.nasa.gov/>

Astronauts' view of the Earth



http://earthkam.sdsc.edu/datasys/GEO_SRCH/ZOOM1_ROW0/GEO_001.HTM

Earth Cam, Clickable map

http://eol.jsc.nasa.gov/cities/city_map.htm

Cities from Space

<http://geocode.com/eagle.html>

Tele Atlas, input an address, and find exact latitude and longitude information

<http://ks.water.usgs.gov/Kansas/>

Website for the United State Geologic Survey

<http://rsb.info.nih.gov/ij/>

Image J, free download

<http://www.getty.edu/research/tools/vocabulary/tgn/>

The Getty Thesaurus of Geographic Names includes a tool for searching longitude and latitude by place name